Quiz:

- Scalar / Vectors
- Distance / Displacement
- Speed / velocity
- (Little) acceleration

- Scalars → magnitude (just #s)
- Vectors → magnitude and direction

Scalars	Vectors
distance	displacement
speed	velocity
time	
	acceleration
	momentum
mass	

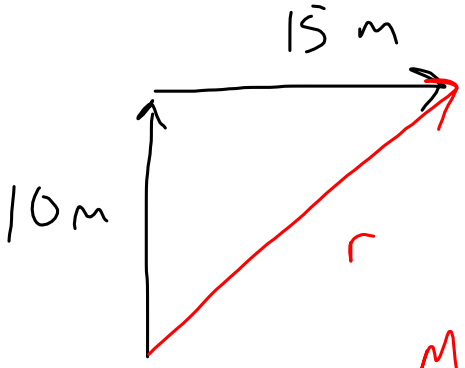
+/- for Scalars → increase or decrease

+/- for Vectors → direction

6 m →

← 15 m/s

A person walks 10 m north and then 15 m east. Find the resultant displacement (magnitude and direction).



Direction: Northeast

Magnitude:

$$r^2 = a^2 + b^2$$

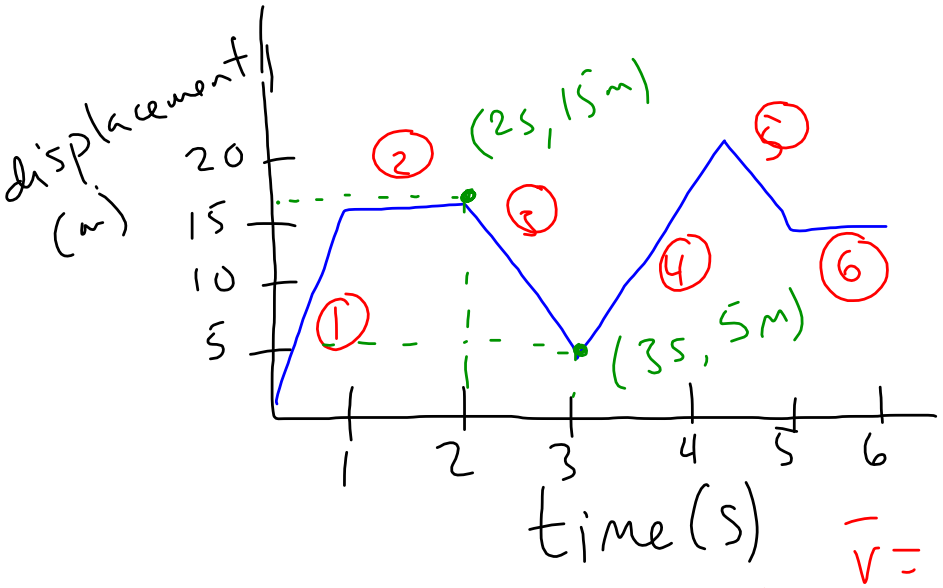
$$r = \sqrt{a^2 + b^2}$$

$$= \sqrt{(10\text{m})^2 + (15\text{m})^2}$$

$$= \sqrt{325\text{m}^2}$$

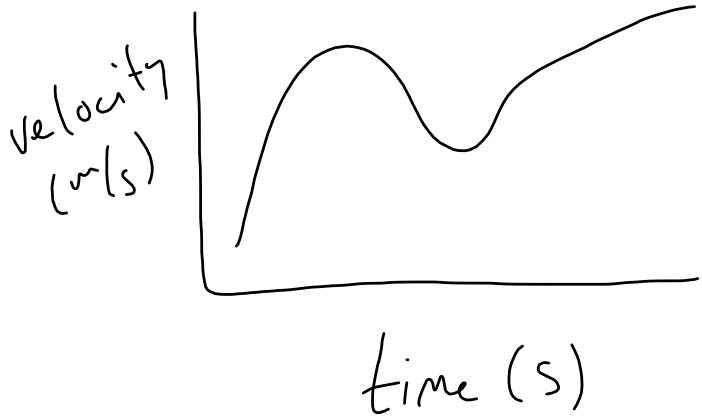
$$= 18.03\text{m}$$

$\vec{r} = 18.03\text{m}$ northeast



$\bar{v} = \frac{d}{t}$

slope → velocity



$\bar{a} = \frac{\bar{v}}{t}$

slope → acceleration

Between 2s and 3s

$$v = \frac{d_f - d_i}{t_f - t_i}$$

$$= \frac{5m - 15m}{3s - 2s}$$

$$= -10\ m/s$$

acceleration:

$$\bar{a} = \frac{\bar{v}_f - \bar{v}_i}{t}$$

Momentum:

$$\bar{p} = m\bar{v}$$

momentum = (mass)(velocity)